

Laser Transmitter for Space-Based Atmospheric and Oceanographic LIDAR, Phase I

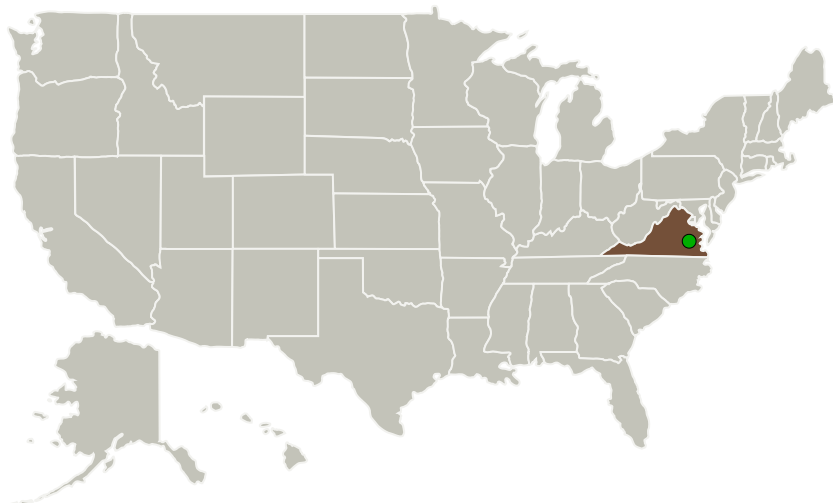
Completed Technology Project (2014 - 2014)



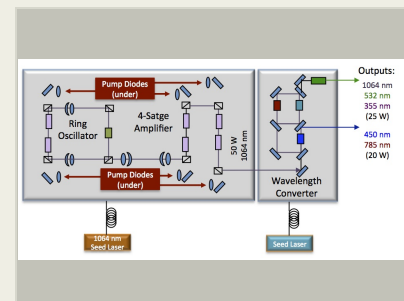
Project Introduction

In response to the need for higher performance, Fibertek has developed a new generation of solid-state lasers capable of meeting the requirements for higher efficiency and scalability to output powers over 100 W. The first examples of higher-performance lasers for space-based lidar are the ATLAS transmitters now being manufactured for the NASA ICESat-2 mission. Under the present SBIR opportunity we propose to begin development of a laser transmitter designed to address requirements for second-generation lidar missions but with advanced capability including: * Average output power of 50-100 W at repetition rates of 500-1000 Hz * Electrical efficiency 10% from satellite bus power * Multiline single-frequency output capability at 1064 nm, 532 nm, and 355 nm * Narrow linewidth output in the blue-green region selectable between 450 and 490 nm. The last feature will allow the transmitter to be used for measurements of deep subsurface ocean scattering, providing unprecedented capability for direct depth-resolved measurements of the ocean ecosystem.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Fibertek, Inc.	Lead Organization	Industry	Herndon, Virginia
● Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia



Laser Transmitter for Space-Based Atmospheric and Oceanographic Lidar Project Image

Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Project Transitions	2
Images	2
Organizational Responsibility	2
Project Management	2
Technology Maturity (TRL)	2
Technology Areas	3
Target Destinations	3

Laser Transmitter for Space-Based Atmospheric and Oceanographic LIDAR, Phase I

Completed Technology Project (2014 - 2014)



Primary U.S. Work Locations

Virginia

Project Transitions



June 2014: Project Start

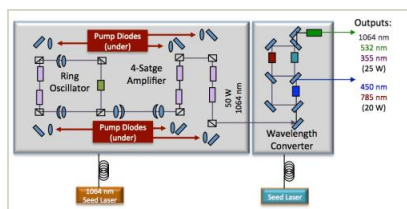


December 2014: Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/140568>)

Images



Project Image

Laser Transmitter for Space-Based Atmospheric and Oceanographic Lidar Project Image
(<https://techport.nasa.gov/image/130819>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Fibertek, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

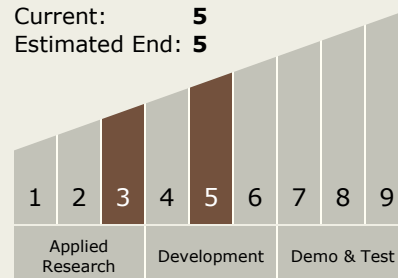
Carlos Torrez

Principal Investigator:

Charles Culpepper

Technology Maturity (TRL)

Start: **3**
Current: **5**
Estimated End: **5**



Laser Transmitter for Space-Based Atmospheric and Oceanographic LIDAR, Phase I

Completed Technology Project (2014 - 2014)



Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.1 Remote Sensing Instruments/Sensors
 - └ TX08.1.5 Lasers

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System